United States
Department of the Interior
U.S. FISH AND WILDLIFE SERVICE

Southwest Arizona National Wildlife Refuge Complex
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Yuma, Arizona 85365
(928) 783-7861, (928) 783-8611 fax

March 2, 2010

Interested Parties,

The U.S. Fish and Wildlife Service (Service) has completed the planning and decision-making process for the High Tank #3 maintenance project. The Service conducted extensive coordination with other agencies and conservation organizations in the development of this project. Additional input was sought through website postings and direct mailings to the public, beginning December 1, 2009. All input received has been considered and a final decision has been made.

The Service will be conducting maintenance at the site known as High Tank #3. This is a natural bedrock pothole in the Kofa Mountains on the Kofa National Wildlife Refuge (Refuge) that collects and holds rainwater. High Tank #3 has been identified as a critical source of water for desert bighorn sheep. Maintaining a viable desert bighorn sheep population is critical to fulfilling the Refuge's purpose.

This site has been maintained as a water source for wildlife since the Refuge was established in 1939. Accumulated gravel was removed from High Tank #3 in the 1940s and was sealed with a thin coating of cement. The pothole was cleaned and resealed again in 1983. Since that time, the cement coating has worn thin and is absent in places. This is allowing accumulated water to escape and is significantly reducing water availability at the site.

To complete the project, the Service will remove and set aside water that is currently in High Tank #3. Accumulated sediment and gravel will be removed and placed downstream of the pothole. The bottom of the pothole will be cleaned and resealed with another thin layer of cement. The Service will then replace the saved water. The project is expected to take place in the spring of 2010.

The site is in the Kofa Wilderness. More than 510,000 acres of the Refuge were designated wilderness by Congress in 1990. The Refuge's wilderness stewardship plan states that maintenance, modification and repair of wildlife waters may be considered on a case-by-case basis. As such, a minimum requirements decision guide has been prepared for this project per the Service's wilderness policy. This report, along with applicable NEPA planning documents, is attached to this letter and available upon request by contacting our office directly, or by downloading the documents from our website at: http://www.fws.gov/southwest/refuges/arizona/kofa/.

Thank you for your interest in Kofa National Wildlife Refuge.

Mitch Ellis

Complex Manager
Southwest Arizona National Wildlife Refuge Complex

CATEGORICAL EXCLUSION
NEPA COMPLIANCE CHECKLIST

Project Description: Clean and Reseal High Tank #3 (White Dike Tank) on the Kofa National Wildlife Refuge

The Service is proposing to conduct maintenance at a site known as High Tank #3. This is a natural bedrock pothole in the eastern portion of the Kofa Mountains on the Kofa National Wildlife Refuge (Refuge) that collects and holds rainwater. High Tank #3 has been identified as a critical source of water for desert bighorn sheep (*Ovis canadensis mexicana*). Maintaining a viable desert bighorn sheep population is critical to fulfilling the Refuge's purpose.

This site has been maintained as a bighorn sheep water source since the Refuge was established. Accumulated gravel was removed from High Tank #3 in the 1940s and was sealed with a thin coating of cement. A large shade structure was built over the pothole at that time to reduce evaporative loss of water. The pothole was cleaned and resealed again in 1983. Since that time, the cement coating has worn thin and is absent in places allowing the accumulated water to escape. The site is within the Kofa Wilderness area, designated by Congress in 1990.

The proposed action is to remove and set aside any water that is currently in High Tank #3, remove accumulated sediment, rock, and gravel, clean the interior of the pothole, reseal the pothole with another thin layer of cement, and replace the saved water. The site is in wilderness and a minimum requirements decision guide has been prepared. The Refuge's wilderness stewardship plan states that maintenance, modification and/or repair of wildlife waters may be considered on a case-by-case basis.

This action fits the Categorical Exclusion listed below for the following reasons: 1) The impacts from the maintenance activities will be minimal, as there will be no noticeable change in the project site; 2) natural sand, rock and gravel removed from the pothole will be placed immediately below the pothole and will be distributed naturally with subsequent rainfall events; 3) the short-term disturbance impacts will be insignificant as the action will occur over a 2-day period; and 4) this action is an infrequently recurring maintenance operation expected to occur at 25 year intervals and impacts are expected to be minimal.

This proposal _X_ is; ____ is not; completely covered by the categorical exclusion found in the Department of the Interior Manual:

516 DM 8.5B(2): "The operation, maintenance, and management of existing facilities and routine recurring management activities and improvements, including renovations and replacements which result in no or only minor changes in the use, and have no or negligible environmental effects on-site or in the vicinity of the site."

This action does not trigger an exception to the Categorical Exclusion at 516 DM 2, Appendix 2 as indicated below.

Extraordinary Circumstances: Will This Proposal *(check yes or no for each item below)*:

Yes	No		
___	X	1.	Have significant adverse effects on public health or safety.
___	X	2.	Have significant adverse effects on such natural resources and unique geographic characteristics as historic or cultural resources; park, recreation or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (Executive Order 11990); floodplains (Executive Order 11988); national monuments; migratory birds (Executive Order 13186); and other ecologically significant or critical areas under Federal ownership or jurisdiction.
___	X	3.	Have highly controversial environmental effects or involve unresolved conflicts concerning alternative uses of available resources [NEPA Section 102(2)(E)].
___	X	4.	Have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks.
___	X	5.	Have a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects.
___	X	6.	Have a direct relationship to other actions with individually insignificant but cumulatively significant environmental effects.
___	X	7.	Have significant adverse effects on properties listed or eligible for listing on the National Register of Historic Places as determined by the bureau or office, the State Historic Preservation Officer, the Tribal Historic Preservation Officer, the Advisory Council on Historic Preservation, or a consulting party under 36 CFR 800.
___	X	8.	Have significant adverse effects on species listed, or proposed to be listed, on the List of Endangered or Threatened Species, or have significant adverse effects on designated Critical Habitat for these species.
___	X	9.	Have the possibility of violating a Federal law, or a State, local, or tribal law or requirement imposed for the protection of the environment.
___	X	10.	Have the possibility for a disproportionately high and adverse effect on low income or minority populations (Executive Order 12898).
___	X	11.	Have the possibility to limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (Executive Order 13007).
___	X	12.	Have the possibility to significantly contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act and Executive Order 13112).

(If any of the above extraordinary circumstances receive a "Yes" check, an EA must be prepared.)
___ Yes _X_ No This project includes additional information supporting the Checklist:

- USFSW 2009. Minimum Requirements Decision Guide – "Clean and Reseal High Tank #3 on Kofa National Wildlife Refuge."
- USFWS 1997. Kofa National Wildlife Refuge & Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment

Project Leader: _____ Date: 1/20/10

United States Fish and Wildlife Service
Environmental Action Statement

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA), and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and determined that the action of: **cleaning and resealing High Tank #3 (White Dike Tank) on the Kofa National Wildlife Refuge**

Check One:

X is a categorical exclusion as provided by 516 DM 8.5B(2): *"The operation, maintenance, and management of existing facilities and routine recurring management activities and improvements, including renovations and replacements which result in no or only minor changes in the use, and have no or negligible environmental effects on-site or in the vicinity of the site."* No further NEPA documentation will therefore be made.

___ is found not to have significant environmental effects as determined by the attached environmental assessment and finding of no significant impact.

___ is found to have significant effects and, therefore, further consideration of this action will require a notice of intent to be published in the Federal Register announcing the decision to prepare an EIS.

___ is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations, or procedures.

___ is an emergency action within the context of 40 CFR 1506.11. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other supporting documents:

USFWS 2009. *Minimum Requirements Decision Guide – Clean and Reseal High Tank #3 on Kofa National Wildlife Refuge.*

USFWS 1997. *Kofa National Wildlife Refuge and Wilderness and New Water Mountain Wilderness Interagency Management Plan, Environmental Assessment and Decision Record.*

Signature Approval:

(1) Originator	1/20/10 Date	(2) Environmental Coordinator, R2 NWRS	2.5.10 Date
(3) Refuge Chief, (Actng) R2 NWRS	2/5/10 Date	(4) Regional Director	2/8/10 Date

Consultation, Coordination, & Public Input Process
Cleaning and Resealing High Tank #3
Kofa National Wildlife Refuge

The following information is provided regarding consultation and coordination that has occurred with other federal and state agencies, interested stakeholders, and the public during the planning and decision-making process for the following project: *Cleaning and Resealing High Tank #3 on the Kofa National Wildlife Refuge (Refuge).* This project is scheduled for the spring of 2010.

Background

High Tank #3 is a natural bedrock pothole in the Kofa Mountains on the Kofa National Wildlife Refuge (Refuge) that collects and holds rainwater. This site has been maintained as a bighorn sheep water source since the Refuge was established in 1939. Accumulated gravel was removed from High Tank #3 in the 1940s and was sealed with a thin coating of cement. A large shade structure has also been built over the pothole. The pothole was cleaned and resealed a second time in 1983. Since then, the cement coating has worn thin and is absent in places. This is allowing water to escape and is reducing water availability at the site. The proposed maintenance is required to restore the water-holding capacity of the pothole.

The site is in the Kofa Wilderness. More than 510,000 acres of the Refuge were designated wilderness by Congress in 1990. The Refuge's wilderness stewardship plan states that maintenance, modification and repair of wildlife waters may be considered on a case-by-case basis.

State Coordination

The U.S. Fish and Wildlife Service (Service) coordinated with the Arizona Game and Fish Department (AGFD) in 2007 in an effort to identify critical water sources for desert bighorn sheep. At that time, agency biologists identified High Tank #3 as a critical water source in need of monitoring and possible maintenance. Through inspections in 2008 and 2009 it was determined that significant maintenance issues were limiting the water holding capacity of this pothole. Agency officials subsequently discussed the development of a conceptual plan for this project. Because the site is in wilderness, the Service prepared a Minimum Requirements Decision Guide (MRDG) in October of 2009 to further analyze the need for the project. The MRDG is the key document which details the purpose, need, justification, appropriateness, and minimum requirements for the project (largely in the context of compliance with wilderness statutes and policies). Close coordination with the AGFD has occurred throughout the planning process and they are key partners with respect to expertise, labor and funding contributions. The Arizona Desert Bighorn Sheep Society was also consulted early in the coordination process to determine their willingness to contribute labor and funding, should the project be approved.

Other Agency Notification and Public Notice

Significant efforts were made to solicit input from a broad array of constituents. A notice, along with the MRDG, was posted on our website. We also conducted an extensive emailing directly to potentially interested government and non-government organizations. We consulted with numerous

Native American tribes in Arizona and surrounding states. These consultations and notification processes occurred from December 1-18, 2009. As a result, comments were received from four non-government organizations (PEER, Animal Welfare Institute, Sierra Club, and Wilderness Watch) and one individual (Ron Kearns). The comments were analyzed and considered prior to the preparation of the National Environmental Policy Act (NEPA) decision documents.

Summary of Comments Received

The five comment letters received were similar in content. The substantive comments received are summarily listed:

Comment: The Service should monitor wildlife use at High Tank #3 in order to evaluate the effectiveness of the project. This should be done through the installation of a camera.

Although the Service currently has monitoring programs in place that involve cameras at several wildlife waters on the Refuge, these programs have specific purposes. For example, one program is designed to document the presence and distribution of mountain lions on the Refuge. Another program is designed to evaluate temporary or newly developed/redeveloped wildlife waters. The latter includes cameras at Engesser Pass, McPherson, and Yaqui water sources. Images from all cameras are retained and may be used for collateral or future studies.

However, the Service does not have the staffing or financial resources to monitor wildlife use at all critical water sources on the Refuge. Remote sensing, cameras, and other tools used to collect data require a significant commitment of time and funding. The mere act of conducting maintenance at a water source does not drive the decision to commit resources to monitor that site. Rather, an effective study design, with meaningful criteria, is used when research and monitoring activities are implemented.

The Service should reschedule the project to occur outside the peak lambing season of desert bighorn sheep.

The Service has re-scheduled the project for April 9-10, 2010. This is near the end of the peak lambing season for desert bighorn sheep. The Service does not anticipate there being significant adverse impacts to desert bighorn sheep during the project. Human activities will be restricted to the project site (less than 2 acres) and the direct line flight path used by the helicopter. Activities will be over a two-day period, three at the most. Preventing wildlife use of the water hole for 2-3 days in April should not be significant. Water availability is more critical during the warmer summer months. The temporary displacement of pregnant ewes or ewes with lambs from the habitat surrounding High Tank #3 is not expected to be problematic. Large areas of habitat are available immediately adjacent to the site. The probability of project actions resulting in the accidental death of a sheep is also remote (i.e. a fleeing animal falling). Nevertheless, the Service is concerned about the impacts of human activity in bighorn sheep habitat. Both recreation and management activity should be properly managed to reduce impacts to sheep, other wildlife, and wilderness values.

The Service should initiate, or continue, studies designed to help understand the impacts of artificial waters in arid environments.

The merits of water development in arid environments have been extensively studied and debated. A meaningful review of the issues surrounding this debate is outside the scope of this document. Numerous research efforts have been completed in arid environments which attempt to answer some of these questions. It is widely accepted that wildlife will take advantage of available water, whether natural of artificial. What are not well understood are the indirect impacts of artificial waters and their long-term impacts on population dynamics and inter-specific competition.

Regardless, there has historically been a widespread occurrence of ephemeral water sources on the Refuge. There are also several, more reliable springs located in the Kofa Mountains. High Tank #3 is a natural pothole that likely provided an ephemeral water source, but has been enhanced to provide water year-round. The Service has supported research in the past related to artificial waters and will continue to do so as resources are available.

Is the artificial shade structure at High Tank #3 necessary? Is it an unnecessary impact on wilderness values at the site?

The artificial shade structure at High Tank #3 was placed to reduce evaporation and to increase water quality. The shade prevents direct sunlight which reduces water temperature and reduces algal growth. The shade structure is considered an important component of the development of this site and its removal would not be consistent with current objectives related to bighorn sheep population management. The structure was installed prior to wilderness designation. While it is an impact to the wilderness values at the site, it is part of a broader program directed towards the management of the Refuge's bighorn sheep population, which is also a wilderness resource.

The use of motorized equipment in wilderness violates the Service's duty to maintain the wilderness character of the Kofa Wilderness.

The Minimum Requirements Decision Guide addresses the use of motorized equipment for this project. The use of motorized equipment can be authorized in wilderness under certain circumstances when in compliance with wilderness statutes, regulations, and policies.

The Service's public input process was flawed.

The Service's public input process for this project exceeded that which is required by law. Internal discussions and early coordination with the State and other key partners was conducted to explore the feasibility and financial viability of the project. An MRDG was prepared and subsequently shared with potentially interested agencies and the public through a significant public input process. The final decision documents, including a categorical exclusion under NEPA, were prepared after full consideration of all input received.

ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER

MINIMUM REQUIREMENTS DECISION GUIDE

WORKSHEETS

". . . except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act..."

– the Wilderness Act, 1964

Please refer to the accompanying MRDG *Instructions* for filling out this guide.
The spaces in the worksheets will expand as necessary as you enter your response.

Clean and Reseal High Tank #3 on Kofa National Wildlife Refuge

Step 1: Determine if any administrative action is necessary.

Description: Briefly describe the situation that may prompt action.

High Tank #3 (also known as White Dike Tank) is a natural bedrock pothole in the eastern portion of the Kofa Mountains on the Kofa National Wildlife Refuge (Refuge) that collects and holds rainwater. It is located at 33° 27.074'N, 113° 51.874'W, and is about two miles west of Craven Well. High Tank #3 was identified as a critical source of water for desert bighorn sheep (*Ovis canadensis mexicana*) in the *Investigative Report and Recommendations for the Kofa Bighorn Sheep Herd* which was completed by the U.S. Fish and Wildlife Service (Service) and the Arizona Game and Fish Department (AGFD) in April, 2007. The *Investigative Report* was written because desert bighorn sheep surveys estimated that the desert bighorn sheep population had dropped between 2000 and 2006 to approximately 50% of the long-term average of 760. The most recent desert bighorn sheep population survey in October 2009 did not show an

appreciable recovery; the population was estimated to be 410 animals. The *Investigative Report* outlines a number of actions to increase numbers of desert bighorn sheep back to historic levels which would allow the Refuge to meet its conservation mandates relating to bighorn sheep. One of the actions described in the *Investigative Report* is the maintenance of permanent water at critical water sources. Maintaining a viable desert bighorn sheep population is critical to fulfilling the Refuge's purpose and maintaining an important wilderness value.

High Tank #3 has been maintained as a bighorn sheep water source since the Refuge was established. Accumulated gravel was removed from High Tank #3 in the 1940s and it was sealed with a thin coating of a cement-like product. A large shade structure was built over the pothole at that time. High Tank #3 was cleaned and resealed again in 1983, using a thin layer of Thoroseal, or another cement-like sealing product. Since that time, the coating has worn thin and is absent in places allowing the accumulated water to escape.

During the winter of 2008/2009 and during the summer of 2009, High Tank #3 filled with rainwater, but much of the rainwater leaked out of the pothole and was lost to evaporation, leaving a minimal pool of water. When full, High Tank #3 holds approximately 29,000 gallons of water which is used extensively by bighorn sheep during the hot summer months. During early July, 2009 the importance of High Tank #3 as a water source for sheep was emphasized when three radio-collared bighorn ewes moved from areas further away to High Tank #3 where they spent the next several weeks in the immediate area. On August 11, 2009 approximately 2,600 gallons were hauled by helicopter to High Tank #3 to prevent it from going dry.

Briefly, the proposed action is to remove and set aside any water that is in High Tank #3, remove accumulated sediment, rock, and gravel, clean the interior of the pothole, reseal the pothole using Thoroseal or a similar cement-sealing product, and replace any water that has been saved. A more complete project description is found under Alternative No. 1 – Proposed Action.

To determine if administrative action is necessary, answer the questions listed in A - F on the following pages:

A. Describe Options Outside of Wilderness

Is action necessary within wilderness?

Yes: ☑ **No:** ☐

Explain:

The Kofa Wilderness is one of the few areas left that is large enough and has the correct habitat configuration to support large numbers of desert bighorn sheep in a single protected area. While there are many mountain ranges in southern Arizona that contain bighorn sheep, these populations are often too small to ensure sustainability or

to serve as source populations for broader conservation efforts. Many of these isolated areas are also federally designated wilderness managed by the Service or the Bureau of Land Management.

The significance of the Refuge is that it contains the largest contiguous block of habitat for desert bighorn sheep in southwest Arizona. While site-specific actions can sometimes be effectively conducted outside wilderness, broad scale management actions must occur within wilderness. Wilderness designation covers 510,000 acres of the Refuge's 665,400 acres. In many instances, conservation actions directed at bighorn sheep on the Refuge will need to be conducted within wilderness. In this case, High Tank #3 is located within wilderness, and activities designed to maintain it cannot take place outside of wilderness.

Desert bighorn sheep populations are at risk or declining in many areas throughout their range in the southwest. Intervention to manage adverse impacts brought on by anthropogenic forces is frequently necessary. The impact of natural factors such as drought, disease and predation are exacerbated by unnatural factors such as habitat fragmentation, disease transmission by livestock, and direct disturbance caused by recreation. Historically, natural cyclic population fluctuation, even complete extirpation from specific mountain ranges, posed no serious lasting effect. This was true because bighorn sheep were able to move easily between mountain ranges, and often did, enabling appropriate habitats to be re-colonized and existing herds to receive genetic exchange. Unfortunately, human induced habitat fragmentation has seriously limited the ability of desert bighorns to move between areas of their historic range. Specific barriers in southern Arizona would include the cities of Tucson, Phoenix, other municipalities, the Central Arizona Project, other large canals, agricultural development along the Gila River, Interstate 10, Interstate 8, other highways, and growing recreational pressures. The introduction of disease through contact with livestock can also have dramatic impacts on bighorn herds, sometimes eliminating them in areas altogether. Isolated populations can also be vulnerable to human disturbance as was demonstrated near Tucson's Pusch Ridge, where hikers and their pets had dramatic effects on bighorns. Considering this information collectively, one can begin to understand the need for active management of this species, including the need to conduct transplants of desert bighorn sheep to specific areas as the need arises. For example, suitable habitats currently unoccupied due to a disease event may justify a translocation of several sheep at once, while smaller numbers of sheep may be needed for translocations to maintain genetic viability in smaller populations. The management of desert bighorn sheep populations in the few larger blocks of habitat that remain is critical in order to have lasting source populations.

B. Describe Valid Existing Rights or Special Provisions of Wilderness Legislation

Is action necessary to satisfy valid existing rights or a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that allows consideration of the Section 4(c) prohibited uses? Cite law and section.

Yes: ☐ **No:** ☑ **Not Applicable:** ☐

C. Describe Requirements of Other Legislation

Is action necessary to meet the requirements of other laws?

Yes: ☑ **No:** ☐ **Not Applicable:** ☐

Explain:

The National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C.§668dd, as amended) states, "the mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." The Act emphasized that the Refuge System was created to conserve wildlife and their habitats. The Act defines conservation as sustaining, restoring or enhancing healthy populations of fish, wildlife, and plants utilizing methods and procedures associated with modern scientific resource programs. The Act directs the Service to manage each refuge to fulfill the mission of the System as well as the specific purposes for which that refuge was established. The specific purpose of the Kofa National Wildlife Refuge is found in Executive Order 8039 and is "for the conservation and development of natural wildlife resources."

The conservation of desert bighorn sheep was the driving force behind the establishment of the Refuge. In a letter to President Franklin D. Roosevelt on December 20, 1938, Lynn Lockhart, Chairman of the Democratic State Central Committee wrote: "During November and December 1937, it was proposed to set aside by Executive Order approximately 4,000,000 acres of land for the preservation of our bighorn mountain sheep...(and) as a result of our negotiations in Senator Hayden's office, the proposed refuges were reduced in size from approximately 4,000,000 acres to 1,500,000 acres." Also, the Arizona Game Protective Association issued a proclamation at its annual convention in Safford, Arizona on October 1, 1938 that states, in part: "WHEREAS, our Gaillard Bighorn Mountain Sheep, located on the desert ranges of Pima County and Yuma County, are in danger of extermination, and WHEREAS, the Biological Survey [the precursor to the Service], the University of Arizona, and the Arizona State Game Department and other interested Agencies have made a study of the situation and have plans, which, if put into effect, will save this species of valuable wildlife, and WHEREAS, as a result of these studies and discussions, an Executive Order was drawn up during December 1937...which would set aside and establish two Bighorn Refuges to be administered by the Biological Survey, these refuges to be known as the Kofa Refuge, 672,500 acres in Yuma County, and the Cabeza Prieta Bighorn Refuge, approximately 881,440 acres..."

D. Describe Other Guidance

Is action necessary to conform to direction contained in agency policy, unit and wilderness management plans, species recovery plans, or agreements with tribal, state and local governments or other federal agencies?

Yes: ☑ **No:** ☐ **Not Applicable:** ☐

Explain:

The *Kofa National Wildlife Refuge & Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment* (USDI 1997) addresses the significance of the bighorn sheep population on the Refuge and its importance in helping to achieve Refuge purposes, including its value as a wilderness resource and source population for regional translocations. The plan states that the Service will maintain and enhance the natural diversity of flora and fauna within the planning area and this will be done within a dominant wilderness context. The plan goes on to state that the Service will manage wilderness portions of the planning area using the minimum tools needed for maintaining an optimal desert bighorn sheep population while providing for maximum viable species diversity. On page 33, the plan states that maintenance, modification and/or repair of wildlife waters using mechanical means may be considered on a case-by-case basis. The plan also gives a list of wildlife waters where regular maintenance using mechanical means is expected.

E. Wilderness Character

Is action necessary to preserve one or more of the qualities of wilderness character including: untrammeled, undeveloped, natural, outstanding opportunities for solitude or a primitive and unconfined type of recreation, or unique components that reflect the character of this wilderness area?

Untrammeled: **Yes:** ☐ **No:** ☑ **Not Applicable:** ☐

Explain:

Undeveloped: **Yes:** ☐ **No:** ☑ **Not Applicable:** ☐

Explain:

Natural: **Yes:** ☑ **No:** ☐ **Not Applicable:** ☐

Explain:

The presence of desert bighorn sheep in the wilderness is important, and they represent an important aspect of the naturalness of this specific wilderness area. The appropriate stewardship of this wilderness resource is required to fulfill the purposes of the Refuge, including the Wilderness Act.

Outstanding opportunities for solitude or a primitive and unconfined type of recreation:

Yes: ☐ **No:** ☑ **Not Applicable:** ☐

Explain:

Other unique components that reflect the character of this wilderness:

Yes: ☐ **No:** ☑ **Not Applicable:** ☐

Explain:

The presence of small shades and silt-retention structures around bighorn sheep water sources could be considered a unique component of Kofa Wilderness.

F. Describe Effects to the Public Purposes of Wilderness

Is action necessary to support one or more of the public purposes for wilderness (as stated in Section 4(b) of the Wilderness Act) of recreation, scenic, scientific, education, conservation, and historical use?

Recreation: **Yes:** ☐ **No:** ☐ **Not Applicable:** ☑

Explain:

Although viewing desert bighorn sheep is an expectation of many wilderness visitors.

Scenic: **Yes:** ☐ **No:** ☐ **Not Applicable:** ☑

Explain:

There would be no change to the appearance of the area after the proposed maintenance to High Tank #3 was completed.

Scientific: **Yes:** ☐ **No:** ☐ **Not Applicable:** ☑

Explain:

The Kofa NWR desert bighorn herd is one of very few populations able to support transplant programs for landscape level conservation of this species.

Education: **Yes:** ☐ **No:** ☐ **Not Applicable:** ☑

Explain:

Conservation: **Yes:** ☑ **No:** ☐ **Not Applicable:** ☐

Explain:

As described earlier in this document, the conservation of desert bighorn sheep at the Refuge is necessary for broader scale management and restoration of this important wildlife resource.

Historical use: **Yes:** ☐ **No:** ☐ **Not Applicable:** ☑

Explain:

The Service first maintained High Tank #3, including adding a metal shade structure, shortly after the establishment of the Refuge, so some may feel that the proposed maintenance project is a continuation of an historic effort.

Step 1 Decision: Is any administrative action necessary in wilderness?

Yes: ☑ **No:** ☐ **More information needed:** ☐

Explain:

The Refuge was established in 1939 by Executive Order 8039 which described the legal purpose being "for the conservation and development of natural wildlife resources, and for the protection of public grazing lands and natural forage resources." The Refuge is managed to fulfill the mission and goals of the Refuge System, as well as the specific purpose for which the Refuge was established. The conservation of desert bighorn sheep was the driving factor in the establishment of the Refuge. The presence of a thriving bighorn sheep population is an important indication that the Refuge is fulfilling its purpose.

With the passage of the Arizona Desert Wilderness Act of 1990, about 510,000 acres of the Refuge's 665,400 acres became designated wilderness. For wilderness areas within the Refuge System, the purposes of the Wilderness Act are considered to be "within and supplemental" to the purposes for the specific Refuge. Put another way, the wilderness purposes are additional purposes and must be harmonized with specific Refuge purposes as well as the mission of the Refuge System.

In response to the noted decline of bighorn numbers on Kofa NWR, the Service and the Arizona Game and Fish Department (AGFD) prepared a report in April 2007 titled: *Investigative Report and Recommendations for the Kofa Bighorn Sheep Herd* (Investigative Report). The purpose of the report was to provide an analysis of the probable causes of the decline and a strategic approach to a management program intended to lead to the recovery of this important wildlife resource. The plan includes three sections. Part 1 describes the current problem and provides some historical context. The heart of the plan is Part 2, where issues are identified, and strategies to manage them are recommended. Part 3 is a concise matrix that contains prioritized implementation strategies. Many of the proposed management strategies are currently being implemented and include annual surveys to assess population dynamics, monitoring mortality factors such as disease and predation, and managing water availability.

The specific action being considered is to maintain a water source identified in the *Investigative Report* as a critical water source for desert bighorn sheep. After the proposed project is completed, it could be expected that the pothole will hold rainwater much longer by eliminating or greatly reducing leaks. The project is not expected to result in any visible change to the pothole or any improvements beyond those that are already there (such as the steel shade).

As stated earlier, the Refuge contains the largest contiguous block of habitat for desert bighorn sheep in southwest Arizona. The regional importance of this sheep population is widely recognized and has been a source for translocations since 1957. In fact, over the years 569 bighorn sheep have been captured on the Refuge and released in new areas to supplement populations in Arizona, New Mexico, Colorado, and Texas. Bighorn sheep from the Refuge have provided vital population boosts and genetic variety to bighorn sheep herds throughout the southwest.

The Refuge's role in the landscape level management of desert bighorn sheep cannot be overstated. Very few areas are able to provide sheep for translocations. The Refuge must meet the population objectives for sheep in order to carry out these conservation actions. Implementing the management action outlined earlier in the document is needed to help meet both Refuge purposes and population objectives tied to the transplant program. This includes maintaining critical bighorn sheep water sources.

The bighorn sheep population objectives set for the Refuge are an example where management direction was developed in support of landscape level conservation efforts. This is particularly true with regard to objectives meant to support transplant programs across a multi-state area. Service policy states that we manage populations for natural densities and levels of variation, however, on some refuges, including those with purposes tied to particular species; we can establish goals and objectives to maintain densities higher than those that would naturally occur in order to support conservation at multiple scales. Service policy also promotes, when and where practical, the support of reintroduction programs for native species in the context of surrounding landscapes.

Again, natural processes are difficult to describe in this case. The anthropogenic forces described earlier have had larger impacts. Specific management actions directed at bighorn sheep in wilderness may not be meant to increase or maintain the "naturalness" of the wilderness at a specific location or for a specific process. Rather, they may be intended to allow the numbers of desert bighorn sheep on the Refuge to be maintained or increased for broader purposes. Prior to significant alteration of the region by humans, desert bighorn sheep would have been able to move between mountain ranges and cross desert floodplains and re-colonize mountain ranges where sheep numbers may have dropped for a variety of reasons, including predation or disease. Movements of sheep are now greatly restricted by highways, fences, canals, and human habitation.

In conclusion, there is a need to provide conservation actions in wilderness for desert bighorn sheep on the Refuge. The specific administrative action of maintaining critical water sources is needed in order to enhance the bighorn sheep population. This will further Refuge purposes, including Wilderness Act purposes, and help meet the Refuge System mission.

If action is <u>necessary</u>, proceed to Step 2 to determine the <u>minimum</u> activity.

Step 2: Determine the minimum activity.

Description of Alternatives

For each alternative, describe what methods and techniques will be used, when the activity will take place, where the activity will take place, what mitigation measures are necessary, and the general effects to the wilderness resource and character.

Alternative No. 1 – Proposed Action

Description: The maintenance of High Tank #3 would involve Service and AGFD personnel, and volunteers digging accumulated gravel, rocks, and sediment out of the pothole by hand, using shovels, digging bars, and five-gallon plastic buckets. Before any gravel is removed any water in the pothole would be placed temporarily into collapsible 1,600-2,000-gallon water storage tanks using a portable, gasoline-powered water pump and 1-½" fire hoses. Approximately four cubic yards of sediment, rocks, and gravel are currently in the bottom of High Tank #3. The material removed would be placed downstream of the pothole and would be expected to wash downstream during future storm events. Once the gravel and sediments are removed, the surface of the pothole would be cleaned using water and handbrushes. A portable, gasoline-powered cement mixer would then be used to prepare the Thoroseal. One or two layers of Thoroseal, or other cement sealing material, would be applied by hand, using brushes and trowels, to the interior of the pothole. Pigment may be added to the Thoroseal to closely match the natural color of the bedrock. Any salvaged water would then be replaced in the pothole.

Because of the two mile distance from the nearest road over rugged terrain where there is no trail, and the weight of the equipment and materials needed, a single helicopter would be required to transport materials and equipment from a staging area at Craven Well to High Tank #3. Volunteers as well as agency personnel would save approximately two hours of hiking time each way by being transported from Craven Well to High Tank #3 by helicopter, thus decreasing overall project time and leaving the personnel involved with more energy to accomplish the project. The efficiency gained by transporting personnel is expected to decrease the overall project time. The effort is expected to take no more than three days overall. A few bushes and two ocotillos (*Fouqueria splendens*) may have to be trimmed at High Tank #3 to allow the helicopter to land safely just upstream of the pothole.

Agency personnel and volunteers would camp near Refuge Marker #14, near the intersection of the Red Rock Pass and Pipeline Roads, where there is plenty previously used campsites within 100 feet of the designated road.

Effects:

Wilderness Character

"Untrammeled"

Refuge wilderness policy (610 FW 2.20) states that structures or installations that existed prior to wilderness designation may be retained and maintained if it is determined by the Service as a minimum requirement to administer the area as wilderness and is necessary to accomplish the purposes of the Refuge, including Wilderness Act. The wilderness policy also states that fish, wildlife, plants and their habitat are essential and inseparable components of wilderness. The proposed action maintains an existing natural rock pothole that was altered (by the addition of a shade structure and a silt retention dam) in the 1940s as a critical water source for desert bighorn sheep.

"Undeveloped"

There would be temporary visual intrusion in the wilderness from equipment and materials, including a small helicopter, and a group of volunteers and agency personnel. Once the project is completed, however, all equipment and any leftover materials would be removed. Natural sediment and rocks removed from the pothole and placed downstream of High Tank #3 will only stay in place until rainwater from future storms wash and redistribute the material downstream. Pigment may be mixed with the Thoroseal to more closely match the natural color of the pothole and reduce any contrast with the surroundings. The imprint of man's work would remain substantially unnoticeable overall and the site would continue to contrast with other areas of growing mechanization.

"Outstanding opportunities for solitude or a primitive and unconfined type of recreation"

The use of a helicopter and a gasoline-powered water pump would be a temporary visual and auditory intrusion in wilderness. Should a member of the public witness the use of a helicopter or hike to the project area and witness the use of power equipment during the time the High Tank #3 is being maintained, it may adversely affect their wilderness experience. Outstanding opportunities for solitude or a primitive and unconfined type of recreation offered on the Refuge would continue in the proposed action.

"Natural"

The removal of accumulated sediments in High Tank #3, resealing the pothole with one or two layers of pigmented Thoroseal, and the replacement of any rainwater that was set aside prior to the removal of sediment will only very temporarily change the natural regime of scouring, and sediment deposition and removal found in a drainage high in a desert mountain range. However, the last time this project was completed was in 1983, so the effectiveness of the effort may last another 26 years. There will be no change to the long-term naturalness of the area.

Other unique components that reflect the character of this wilderness

The Kofa wilderness is characterized by rugged desert mountain ranges surrounded by bajadas and separated by vast desert flats. There is evidence of past hard rock mining, livestock grazing, and the work of the Arizona Conservation Corps in the form of old

roads, small concrete dams, mines, tailings piles, cemeteries, historic buildings, wells, windmills, and a corral in and immediately adjacent to wilderness. There is also past evidence of the work of the Service in the form of spring improvements and small shades and other structures in and near wildlife water sources. The Refuge is known for its conservation of desert bighorn sheep and its habitat. These unique components would not be altered or affected in the proposed action.

Heritage and Cultural Resources

There is a shelter cave immediately west of High Tank #3 that shows evidence of past use by Native Americans including shallow bedrock mortars and some staining on the ceiling likely from campfires. All personnel involved in the proposed action would be reminded not to disturb these or any other cultural or historic artifact including rock art, lithic scatters, and pot shards.

Maintaining Traditional Skills

The proposed action includes digging out accumulated sediment, rocks, and gravel using hand tools, and forming a bucket brigade to transport the material just downstream of High Tank #3. The process requires cooperation from many individuals and can be considered a traditional skill. Some participants in the project may elect to walk in from the nearest designated road rather than accept a ride in a helicopter. Hiking cross-country could be considered a traditional skill.

Special Provisions

The special provisions of wilderness designation which allow mining activity to continue on unpatented mining claims that were present at the time of the passage of the Desert Wilderness Act of 1990 would not be changed by the implementation of Alternative No. 1 – Proposed Action. The maintainance of wildlife water sources considered critical for bighorn sheep using mechanized tools covered in the Refuge's existing planning (USDI 1997) would continue.

Economic and Time Constraints

The proposed action requires a financial commitment to purchase need materials, provide necessary equipment and tools, contract with an appropriate helicopter company which provides external load capabilities and the use of unimproved landing sites. Arrangements and agreements are in place with partner organizations to share the cost of implementing this alternative. It is anticipated that funding will be provided through the Service and partners.

The urgency of the action is driven by the depressed numbers of sheep on the Refuge and the cessation of regional translocation programs. Also, recent rainfall patterns on the Refuge have been favorable (at or above average since 2004) and have resulted in vegetation and habitat conditions beneficial for most wildlife, including bighorn sheep. If the Proposed Action is completed, it is anticipated that there will not be a repeating need to haul supplemental water with a helicopter to High Tank #3 during the summer months, as there was in summer 2009.

Additional Wilderness-specific Comparison Criteria

The Refuge is at the center of the largest contiguous piece of desert bighorn sheep habitat for the subspecies *mexicana* (*O. c. mexicana*). While other mountain ranges contain this subspecies, they generally do not have a population of desert bighorn sheep large enough to support transplants of sheep from those mountain ranges to other mountain ranges where desert bighorn sheep numbers have declined or have been extirpated. The Refuge has been a source population for sheep transplants within Arizona and in the surrounding states for over 50 years. Transplants have been suspended since 2006, when the Refuge sheep population was found to have dropped to approximately 390 animals. Other mountain ranges in Arizona have been found to be able to support the removal of a few animals at a time, but cannot support the removal of 25 to 30 animals at one time, which is the desired number of bighorn sheep to effectively re-colonize a new area. The San Andres NWR in New Mexico, and the Bighorn, Santa Catalina, Table Top, Maricopa, and Mineral Mountains in Arizona are examples of areas where proposed desert bighorn sheep transplants are on hold pending an increase in sheep numbers on the Refuge.

Safety of Visitors, Personnel, and Contractors

Individuals operating the gasoline-powered water pump would need safety glasses, hearing protection and gloves. Appropriate outdoor work attire (large-brimmed hat, boots, gloves, sunscreen, etc) and preparation would be required by all individuals participating in the project. Those individuals riding or working near helicopters would require additional training, safety briefings, and personal protective equipment.

Alternative No. 2 – No Action

Description:

Under the No Action Alternative, High Tank #3 would not receive any maintenance and would continue to leak whenever it filled with rainwater. Since High Tank #3 is identified as a critical bighorn water source in the Investigative Report, it would continue to receive supplemental water whenever it is necessary until the populations of desert bighorn sheep had reached historical average (760 animals).

Effects:

Wilderness Character

"Untrammeled"

The No Action Alternative could be considered more consistent with wilderness values than the proposed action from the standpoint that natural processes would be allowed to occur since there would be no temporary removal of accumulated sediment, rocks,

and gravel from High Tank #3. However, the supplementation of water into High Tank #3 during the summer months could be expected to take place more often in Alternative No. 2, so there may be additional effects to wilderness character over the long term.

"Undeveloped"

The effect of Alternative 2 – No Action is the same as Alternative 1 – Proposed Action since there is no proposed changes to the existing developed components at High Tank #3 (steel shade structure, sealed pothole, sediment retention dam).

"Outstanding opportunities for solitude or a primitive and unconfined type of recreation"

The use of helicopters for the administrative purpose of supplementing water in High Tank #3 could be expected to continue with regularity in the future since the leaking pothole would not be repaired. Should a member of the public witness the use of the helicopter, it may adversely affect their wilderness experience. Outstanding opportunities for solitude or a primitive and unconfined type of recreation offered on the Refuge would continue under Alternative 2 – No Action.

"Natural"

Under Alternative No. 2, as in Alternative No. 1, there would be no change to the naturalness of the Refuge.

Other unique components that reflect the character of this wilderness

The effect of Alternative 2 – No Action is the same as Alternative 1 – Proposed Action.

Heritage and Cultural Resources

The effect of Alternative 2 – No Action is the same as Alternative 1 – Proposed Action.

Maintaining Traditional Skills

The effect of Alternative 2 – No Action is the same as Alternative 1 – Proposed Action, although we would forgo the opportunity to use a group of individuals to work cooperatively in a remote location to accomplish a task using mostly hand tools.

Special Provisions

The effect of Alternative 2 – No Action is the same as Alternative 1 – Proposed Action.

Economic and Time Constraints

Resealing High Tank #3 would be expected to limit the amount of water supplementation by helicopter that may be needed in the summer months for about the next 26 years.

Additional Wilderness-specific Comparison Criteria

Under Alternative 2 – No Action, there would be no change to the wilderness characteristic of having small developments (such as shade covers and sediment retention dams) at desert bighorn sheep water sources in the Kofa Wilderness.

Safety of Visitors, Personnel, and Contractors

Alternative 2 – No Action provides more safety for agency personnel and volunteers, and visitors since the proposed project would not take place. However, there would be an expected continuation of the need to provide supplemental water using a helicopter during the hot summer months, which does pose a risk to the contracted helicopter pilot, fuel truck driver, and other support personnel.

Comparison of Alternatives

It may be useful to compare each alternative's positive and negative effects to each of the criteria in tabular form, keeping in mind the law's mandate to "preserve wilderness character." N/C is no change expected.

	Alternative 1 Proposed Action	Alternative 2 No Action
Untrammeled	-	-
Undeveloped	n/c	n/c
Natural	n/c	n/c
Solitude or Primitive Recreation	-	+
Unique components	n/c	n/c
WILDERNESS CHARACTER	--	+-

When considering wilderness character, Alternative 2 is the most beneficial.

	Alternative 1 Proposed Action	Alternative 2 No Action
Heritage & Cultural Resources	NA	NA
Maintaining Traditional Skills	+	-
Special Provisions	NA	NA
Economics & Time	+	-
Additional Wilderness Criteria	+	-
OTHER CRITERIA SUMMARY	+++	---

When considering other criteria, Alternatives 1 is the most beneficial.

	Alternative 1 Proposed Action	Alternative 2 No Action
SAFETY	NA	NA

Safety Criterion

If safety issues override impacts to wilderness character or other criteria, provide documentation that the use of motorized equipment or other prohibited uses is necessary because to do otherwise would cause increased risks to workers or visitors that cannot be satisfactorily mitigated through training, use of personal protective equipment (PPE), or other requirements to alleviate the safety risk. (This documentation can take the form of agency accident-rate data tracking occurrences and severity; a project-specific job hazard analysis; research literature; or other specific agency guidelines.)

Documentation:

Safety issues do not override impacts to wilderness character or other criteria in this analysis.

Step 2 Decision: What is the Minimum Activity?

Selected alternative:

Alternative No. 1 – Proposed Action

Rationale for selecting this alternative (including documentation of safety criterion, if appropriate):

Alternative No. 1 - the Proposed Action is selected because it supports the effort to meet the bighorn sheep population goals described in the existing Refuge planning documents (USDI 1997) and the *Investigative Report and Recommendations for the Kofa Bighorn Herd* (2007), and supports the transplant goals for desert bighorn sheep within Arizona and in other parts of the southwest. Alternative No. 1 is in compliance with Service policy (610 FW 2.20) since the maintenance project proposed is to a pothole that was modified prior to wilderness designation, and the project is expected to benefit wildlife which is an essential and inseparable component of wilderness. Alternative No. 1 supports the conservation of wildlife and their habitats in wilderness in a manner consistent with the National Wildlife Refuge System Improvement Act of 1997.

Monitoring and reporting requirements:

The effectiveness of the Proposed Action would be accomplished through regular checks of High Tank #3 by personnel on foot. All critical bighorn sheep water sources are checked regularly, particularly during the summer months, to be certain that there is sufficient water. If the sealing is completed and the leaks repaired, it is expected that the regular water checks at High Tank #3 for about the next 26 years would result in a finding of no water supplementation necessary. All vehicles would remain on designated roads outside of wilderness. Any disturbance would be temporary and localized.

All equipment used would be packed in and out on foot or with the use of helicopters and would be removed at the conclusion of the project. All individuals involved would

employ Leave No Trace techniques throughout the project. All vehicles would remain on designated roads outside of the wilderness.

Check any Wilderness Act Section 4(c) uses approved in this alternative:

- ☑ mechanical transport
- ☑ motorized equipment
- ☐ motor vehicles
- ☐ motorboats
- ☑ landing of aircraft
- ☐ temporary road
- ☐ structure or installation

References Cited

U.S. Department of the Interior, USFWS and BLM. 1997. Kofa National Wildlife Refuge and Wilderness and New Water Mountains Wilderness interagency management plan, environmental assessment and decision record. BLM Yuma Field Office and Kofa National Wildlife Refuge, Yuma, Arizona. 84pp.

U.S. Fish and Wildlife Service (USFWS) and AGFD. 2007. Investigative Report and Recommendations for the Kofa Bighorn Sheep Herd. 39pp. Available at http://www.fws.gov/southwest/Refuges/arizona/kofa/docs/031479%20attachment.Kofa%20NWR-AGFD%20Bighorn%20sheep%2004-17-2007.pdf

Minimum Requirements Decision
(Approvals, Reviews, Concurrence)

Clean and Reseal High Tank #3 on Kofa National Wildlife Refuge

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Mitch Ellis — Date
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